these kinds. As a botanist however his interests were frankly taxonomic. He liked plants as such and liked to study their relationships. Living as he for the most part did away from the great botanical centers with their libraries and herbaria his activities naturally took the form of field work and of collecting rather than the writing of extended monographs. He loved the open, and the collection and preparation of specimens. He was always collecting in large sets which he distributed widely and in this way probably did more than any other man of his generation to make the plants of the Southern States available for study in all of the more important American and European herbaria. His interest in forage plants led him to specialize in the grasses. He was also a student of the parasitic fungi, particularly of the rusts and the smuts, the two groups most likely to be found on grasses. His botanical papers largely deal with these two groups in both of which he discovered and described a number of new species. As with the flowering plants however his collections and field studies of the fungi were much more extensive than his publications regarding them. Excepting for his early years in Missouri botany was Tracy's recreation rather than his chief work. During the long period of his activity however there were few who contributed more than he to the real knowledge of American plants.

F. S. Earle.

## REVIEWS

### Martin's Botany with Agricultural Applications*

The suggestion of the technical implied by the original title of this volume (Botany for Agricultural Students) has led the publishers to issue the second edition under a new name, one that conveys somewhat more accurately the real nature of the book. While primarily designed as a text for agricultural students, the underlying principle of the book is one that is rapidly coming to the fore at the present day, viz., that, regard-

* Martin, J. N., Botany with Agricultural Applications, xii + 604 pages, 490 figures, John Wiley & Sons, New York, 1920, $3.00.

less of the class of students concerned, the chief object of botanical instruction in an elemntary course should be to teach the fundamental facts and principles of botany and to relate these to problems of practical interest.

A list of the chapter headings will suggest the nature of the topics treated: (*Introduction*) the nature and subdivisions of botany; a general view of plants; (*Part I*) flowers; pistils and stamens; seeds and fruits; germination of seeds, seedlings; cells and tissues; roots; stems; buds (including growth of stems, pruning, propagation by stems); leaves; (*Part II*) thallophytes (separate chapters on algae, myxomycetes and bacteria, fungi); bryophytes; pteridophytes; spermatophytes (two chapters); classification of angiosperms, and families of economic importance; ecological classification of plants; variation; heredity; evolution.

The present edition differs from the first in that several portions of the text have been rewritten, the chapter on variation added, and many of the illustrations replaced by new or improved ones.

George E. Nichols

**Trees of Indiana**

The second edition, completely rewritten, of Chas. C. Deam's Trees of Indiana * is an extraordinarily satisfactory publication. It is gratifying to consider that thousands of students, farmers, amateur botanists, and tree-lovers in general throughout that state may profit by such carefully written work from the pen of Indiana's most thorough student of the local flora.

Deam has recognized 132 species and 20 varieties of forms. Each of the former and one of the latter is illustrated by a full-page half-tone plate, photographed from a herbarium sheet. Since the sheets were chosen from Deam's own carefully prepared herbarium, the results are excellent and in most cases far better than one would naturally expect. Either fruits or flowers, or both, and frequently bark, are represented. The

* The Department of Conservation, State of Indiana, Indianapolis, 1921, 317 pages, 137 plates.